

**What is claimed is:**

- Sub  
A17
- 5        1. A data storage device comprising:  
         a data storage unit storing a plurality of files  
         each having a plurality of attributes;  
         a rule setup unit storing a ranking rule for ranking  
         the files for each of the attributes;  
         an assignment unit assigning reduction ranking to  
         each of the files on the basis of ranking rules associated  
10        with the attributes; and  
         a reduction unit reducing data in each file according  
         to the reduction ranking when a storage capacity of the  
         data storage unit is insufficient for new data storage.
- 15        2. The data storage device according to claim 1,  
         wherein the rule setup unit further stores application  
         ranking of each of the ranking rules associated with the  
         attributes, and the assignment unit applies the ranking  
         rules in the application ranking order to determine the  
20        reduction ranking of the files.
- 25        3. The data storage device according to claim 1,  
         wherein the rule setup unit further stores weight  
         information for each of the attributes, and the assignment  
         unit calculates the total of the attributes of each file

on the basis of the weight information and determines the reduction ranking of the files on the basis of the total of the attributes.

5           4. The data storage device according to claim 1, further comprising an edit unit editing information stored in the rule setup unit.

10           5. The data storage device according to claim 1, further comprising a reduction ranking storage unit storing the reduction ranking of the files, and wherein the assignment unit determines the reduction ranking during an idle time in processing associated with the data storage unit and stores the reduction ranking in the  
15           reduction ranking storage unit.

20           6. The data storage device according to claim 1, wherein the data storage unit includes a buffer area into which data is written temporarily when the storage capacity is insufficient, and the reduction unit reduces data in each file after data has been written into the buffer area.

25           7. The data storage device according to claim 1, further comprising a restoration unit restoring a data-deleted file to the original file, and wherein the

data storage unit stores a virtual file containing file information of the original file and link information that points to real data of the data-deleted file and the restoration unit restores the data-deleted file to the original file on the basis of information in the virtual file.

8. The data storage device according to claim 1, further comprising an algorithm storage unit storing application ranking of a plurality of reduction processing algorithms, and wherein the reduction unit determines a combination of a reduction processing algorithm and a file whose data is to be reduced on the basis of the application ranking of the reduction processing algorithms and the reduction ranking of the files.

9. The data storage device according to claim 1, further comprising a data reduction speed storage unit storing data reduction speed for each of a plurality of combinations of a reduction processing algorithm and a file whose data is to be reduced, and wherein the reduction unit calculates a target reduction speed and makes a comparison between the target reduction speed and the data reduction speed stored in the data reduction speed storage unit to determine a combination of a reduction processing

algorithm and a file whose data is to be deleted.

10. A computer-readable recording medium recorded with a program for a computer, the program allowing the  
5 computer to perform:

assigning reduction ranking to each of a plurality of files on the basis of ranking rules associated with attributes of the respective files; and

10 reducing data in each of the files according to the reduction ranking when a data storage capacity is insufficient for new data storage.

11. A propagation signal for propagating a program to a computer, the program allowing the computer to  
15 perform:

assigning reduction ranking to each of a plurality of files on the basis of ranking rules associated with attributes of the respective files; and

20 reducing data in each of the files according to the reduction ranking when a data storage capacity is insufficient for new data storage.

12. A data reduction method comprising:

25 setting up a ranking rule for ranking a plurality of files for each of attributes of the files;

assigning reduction ranking to each of the files  
on the basis of ranking rules associated with the  
attributes; and

5       reducing data in each of the files according to the  
reduction ranking when a data storage capacity is  
insufficient for new data storage.

13. A data storage device comprising:

10       data storage means for storing a plurality of files  
each having a plurality of attributes;

rule setup means for storing a ranking rule for  
ranking the files for each of the attributes;

15       assignment means for assigning reduction ranking  
to each of the files on the basis of ranking rules associated  
with the attributes; and

20       reduction means for reducing data in each file  
according to the reduction ranking when a storage capacity  
of the data storage means is insufficient for new data  
storage.

ADD  
A17